

# Using the CRAAP Test to Evaluate Websites

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**Abstract:** Students in the University of Hawaii System are required to use appropriate sources for their papers, presentations, or assignments. The problem for students is determining which resources are appropriate, especially if that source is a website. Anyone can create a website about anything, so it is important for students to learn how to determine if a website is a credible source. “Using the CRAAP Test to Evaluate Websites,” an online instructional module, was created as a means to teach students how to evaluate websites. The initial testing of this module was done to determine the effectiveness of the module to teach the concept of website evaluation. It was administered to students at various levels of study as well as faculty and staff to gain valuable feedback from students as well as those responsible for teaching students about evaluating websites. Quantitative results indicated that participant scores improved from the pretest to post-test. Qualitative results demonstrated that participants understanding of website evaluation increased, but there is room for improvement. The testing of this module was successful and it will be revised and made available to students and instructors at Honolulu Community College, part of the University of Hawaii System. It will also be shared with other instruction librarians within the University of Hawaii System.

## Introduction

A vast amount of information is available on the Internet, some of it credible, some questionable. Students in higher education often times have trouble distinguishing the credible sources from the non-credible sources. As the trend in using the Internet to find sources steadily increases, students will need to become familiar with evaluating those sources to determine if they are appropriate to use for their academic work. Students will also need to understand how to determine the exceptions that can be made when evaluating websites for credibility.

Many students do not know how to appropriately evaluate online resources and as a result use resources that are not credible for their assignments or research. Academic libraries help students navigate information by providing information literacy instruction. The Association of College and Research Libraries created standards for addressing

information literacy in higher education, which includes the evaluation of resources (2011). To meet this standard, libraries across the country teach the process of evaluating websites. There are numerous techniques for teaching the concept, but the content in each method tends to be similar. To address the needs of the students in the University of Hawaii System, the online instructional module “Using the CRAAP Test to Evaluate Websites” was created, <http://webevaletec2012.weebly.com/>. The purpose of this instructional design project was to develop and evaluate an online instructional module on how to critically evaluate websites.

## **Background**

A popular method for teaching the evaluation of a website is to use a checklist of criteria developed by Jim Kapoun. The checklist consists of five evaluation criteria and includes: accuracy, authority, objectivity, currency, and coverage (Kapoun, 1998). Each criteria has a set of questions that the student answers to help determine if the website meets a particular criterion. For example, to help determine the accuracy of a website, the student should answer the following questions: “Who wrote the page and can you contact him or her?”; “What is the purpose of the document and why was it produced?”; “Is this person qualified to write this document?” (Kapoun, 1998).

Two librarians, Meola (2004) and Dahl (2009), challenge the use of Kapoun’s criteria to teach website evaluation. Meola (2004) says the questions that go along with attempting to explain the criteria are vague and unreliable and often don’t help students grasp the concept. He suggests using a contextual approach to teaching website evaluation. This approach consists of promoting library resources over free websites, comparing free websites to library subscribed online content, and corroborating information from websites with other information (Meola, 2004).

Dahl (2009) says that Kapoun’s criteria are inadequate for evaluating non-academic sources. She states that you cannot use academic criteria to evaluate all web content, such as company or personal websites, blogs, discussion posts, social networking pages, and videos (Dahl, 2009). Dahl (2009) recommends an alternative method of evaluation. This method proposes corroboration, comparison, motivation and purpose, which is similar to Meola’s suggestion.

Kapoun, Dahl, and Meola each provide a different perspective on the best strategy for teaching the evaluation of websites. To get a better picture of what libraries are actually doing to teach website evaluation, a Google search on “website evaluation” was done since academic libraries tend to have a strong online presence. According to the results of the Google search, it appears that many academic libraries use some variation of Kapoun’s criteria in their online instruction materials. One such library, Meriam Library at the University of California, Chico, created the CRAAP Test to evaluate websites (2010). CRAAP stands for currency, relevance, authority, accuracy, and purpose and much like Kapoun’s criteria, lists questions to answer for each criterion.

The CRAAP test was chosen as the best method to teach the evaluation concept because of its play on words, which helps to gain the attention and interest of the students. A few modifications were made to the original CRAAP test. Many of the questions listed under each criterion were revised, changed, or added to better teach the students how to determine if the website is credible or not. Table 1 is the modified CRAAP test used in this online module. Another modification to the CRAAP test was the exceptions section. This was made in regard to Dahl's (2009) observation that the criteria were inadequate for evaluating non-academic resources.

**Table 1.** Modified CRAAP Test

<b>Currency:</b> The timeliness of the information.	<ul style="list-style-type: none"> <li>• When was the information posted or published online?</li> <li>• Is the information current or out of date for your topic?</li> <li>• Are the links functional?</li> </ul>
<b>Relevance:</b> The coverage and depth of the content and its importance for your needs.	<ul style="list-style-type: none"> <li>• What is the depth/coverage of the information?</li> <li>• Who is the intended audience? Children? Researchers? Consumers?</li> <li>• Have you looked at a variety of other sources before determining you will use this one?</li> </ul>
<b>Authority:</b> The source of the information.	<ul style="list-style-type: none"> <li>• Who wrote the information and what are their qualifications?</li> <li>• Has the author published works in a more traditional format like books or journal articles?</li> <li>• Is the author associated with an organization? A company? A university? A non-profit organization?</li> <li>• Is there contact information on the website?</li> <li>• What does the URL reveal about the author or the source?</li> </ul>
<b>Accuracy:</b> The reliability and correctness of the information.	<ul style="list-style-type: none"> <li>• Are there citations for the information provided on the website so that you can tell where the information came from?</li> <li>• Is the page or the language on the page objective and free of emotion?</li> <li>• Are there any spelling, grammar, or other typographical errors?</li> </ul>
<b>Purpose:</b> Reason the website exists. Presence of bias or prejudice.	<ul style="list-style-type: none"> <li>• What is the purpose of the website? To inform? To teach? To sell? To entertain? To persuade?</li> <li>• Are there political, ideological, cultural, religious, institutional, or personal biases and are the biases clearly stated on the page?</li> </ul>

## Methods

The ARCS model, which stands for attention, relevance, confidence, and satisfaction, served as the method to motivate participants. ARCS calls for analyzing the motivational characteristics of the learners and then designing a motivational strategy (Keller, 2006). The CRAAP acronym gained learner attention because of its use as a pun. To maintain participant's attention they evaluated different websites, instead of the same one, for all sections of the module. To ascertain relevance, website evaluation was tied to grade outcomes. Confidence for success was instilled by carefully selecting websites that best tested the individual CRAAP criteria. To maintain satisfaction, the module design provided participants a way to actively test their new knowledge by critically evaluating a website one CRAAP criterion at a time.

The module included a pretest, embedded tests, and a post-test with similar questions for evaluation purposes. The pretest served the purpose of establishing the knowledge the participant had before taking the module. The embedded tests kept track of the participant's progress as he/she learned how to evaluate websites. The post-test evaluated what the participant learned from the module. At the end of the module, the participant was asked to fill out a demographic and attitudinal survey.

The module was created using Weebly, a free and easy to use website creator. The tests and survey were created with Google Docs and embedded directly into the website. iFrames were used to embed external websites into the module. To view the module, visit <http://webevaletec2012.weebly.com/>.

A call for participants was sent to Educational Technology graduate students, Library and Information Science graduate students, and various students, faculty, and staff at the University of Hawaii at Mānoa and Honolulu Community College. The module was designed and created for students, but feedback from faculty and staff to determine the potential success was deemed important. The twenty-five participants included undergraduates, graduates, a Ph.D. student, faculty, and a staff member of the University of Hawaii system.

Quantitative and qualitative data was collected from the pre, embedded, and post tests. Qualitative data was collected via open-ended responses following each question to better gauge participant's answers and the effectiveness of the module. The demographic and attitudinal survey also collected qualitative information. Participants created a unique number known only to him or her to ensure anonymity. The only demographic information collected was the participant's current status with the University of Hawaii System and their department.

Two problems became evident in the data collection process. The first is that twenty-five participants started the module, but only fourteen completed the pretest, post-test, and demographic and attitudinal survey. For the most part, this seems to be connected to not clicking the submit button at the end of each test/survey. For instance, in some cases

there was a pretest and the demographic and attitudinal survey, but no post-test, or some variation on this.

The second problem stemmed from the scenario for the questions in the pre and post tests. It asked participants to look for two separate pieces of information. "...In your presentation you are required to **include the basic facts about Mars in addition to discussing the possible implications of the various NASA missions to Mars on the study of finding extra terrestrial life on other planets...**" The Mars website used for the post-test addressed one of the requirements set forth in the scenario, but not the other. This was problematic for question 3 (relevance of the website) in the post-test. Most respondents said the website was not relevant, but three said it was relevant because it included the answer to one of the components in the scenario. Since both were technically right, all respondents received credit for question 3 on the post-test.

## Results

The fourteen participants included two undergraduates, six graduates, and a Ph.D. student as well as four faculty and one staff member of the University of Hawaii System. Figure 1 shows each person's score on the pre and post tests. A majority of the participants demonstrated improvement. Nine of fourteen participants improved, three scoring 100% on the post-test. Two of fourteen participants performed at the same level, one of those scoring 100% on each test, so there was no improvement possible. Three of fourteen participants showed a decline in test performance, one a significant decline.

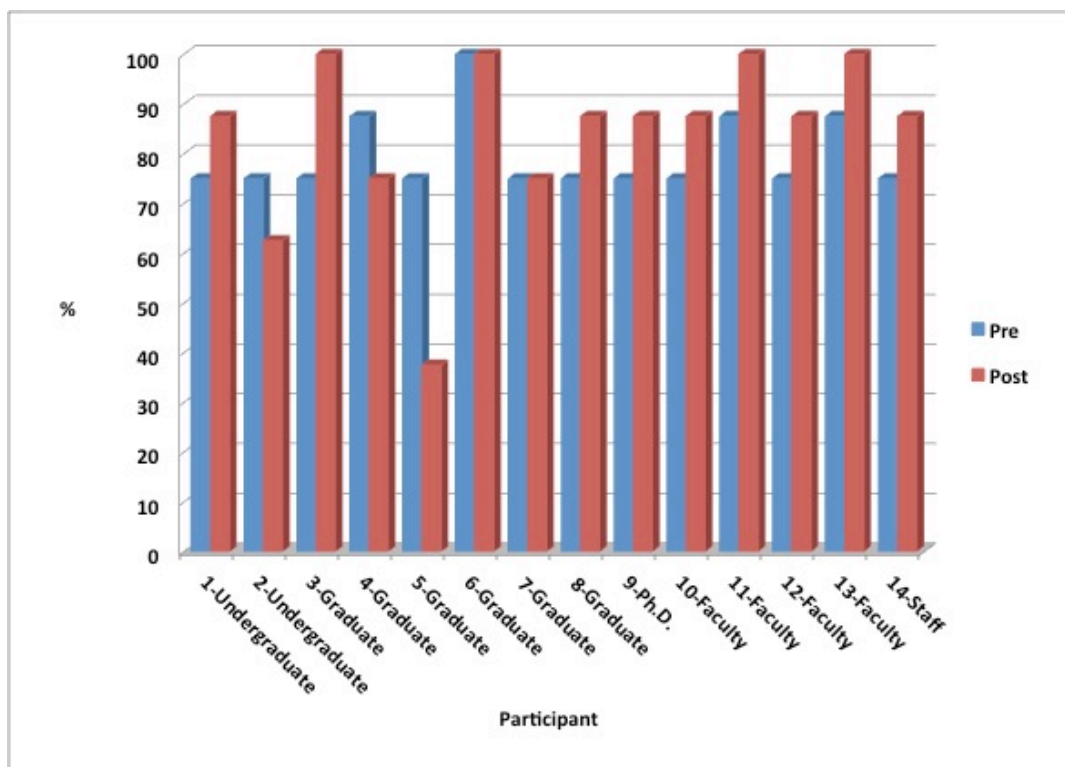
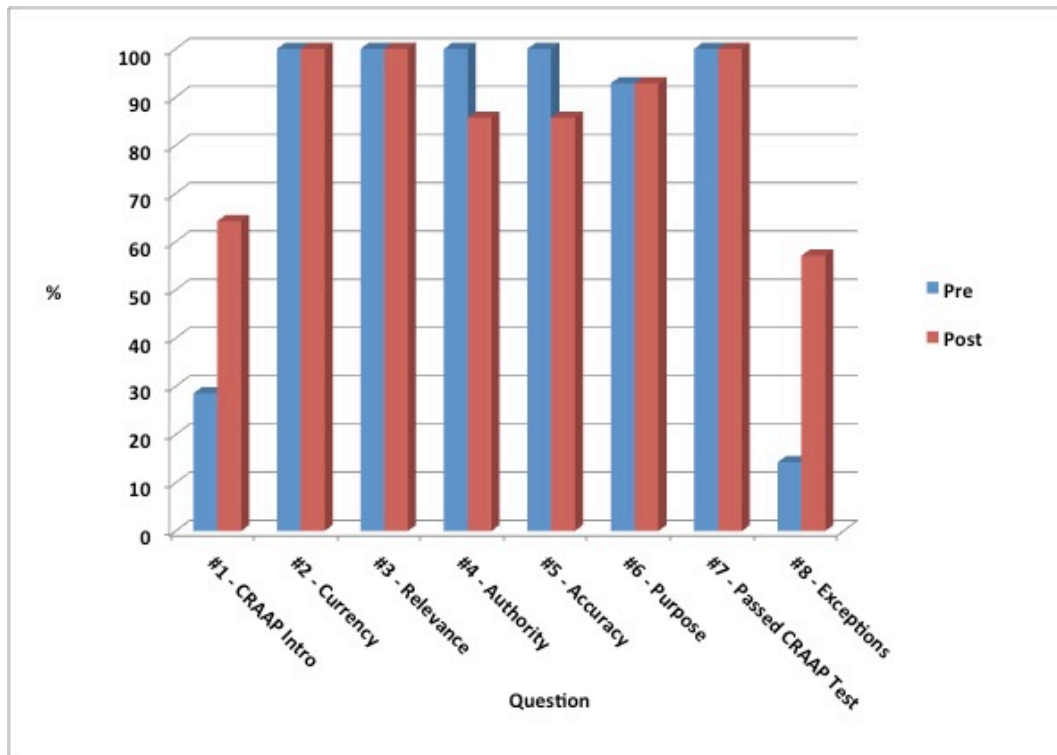


Figure 1. Overall Participant Results.

Figure 2 shows the collective score for each question in the pretest and post-test. The results for questions 1 and 8 showed improvement from the pretest to the post-test, but remained relatively low compared to the rest of the questions. Questions 2, 3, 6, and 7 stayed at the same level. Questions 4 and 5 showed a slight decline in performance.



**Figure 2.** Overall Question Results.

## Discussion

Most participants showed improvement from the pre test to the post-test and that is primarily due to the improvement in scores for questions 1 and 8. Most showed an understanding of the CRAAP criteria, questions 2-6, in the quantitative data of the pre and post tests, but the qualitative data tells a different story. The participants who declined in performance had trouble with questions 1, 4, 5, and 8 in the post-test. The participant who declined the most answered all four questions wrong. The participant who performed at the same level for both tests consistently answered questions 1 and 8 wrong. The following will go into more detail about the individual questions.

According to the quantitative data, the most improvement was observed in questions 1 and 8, which discuss (1) the CRAAP test and how it will be used in the module and (8) the exceptions to the CRAAP test. No qualitative data was collected for these questions, but a response from a graduate student in the attitudinal and demographic survey may shed light onto why the overall scores for both of these questions are so low. The graduate student said, "...I did not realize the CRAAP test was specifically for website evaluation. I've always heard it used as a way to evaluate any resource. I still think it can be used for anything." The CRAAP test is for all sources, but for this module, it was

only used for evaluating websites, which was stated in the module. There are a few possible outcomes for why people may have incorrectly answered 1 and 8. The participants either did not read the content carefully, they read the content and forgot the correct answer, or the content and questions for 1 and 8 confused people. Another possibility is that the questions did not ask for critical thought and this may have impacted performance. Participants overall performed better on the questions requiring critical thought, questions 2-7, in which they had to apply the knowledge they just learned.

Questions 2-6 tested the participants on the CRAAP test criteria: currency, relevance, authority, accuracy, and purpose. Overall the participants scored well on questions 2, (currency of a website) and 3 (relevance of a website), which are the two questions within this group that every participant answered correctly in the pre and post tests. Even the qualitative data collected in the open-ended responses for these questions was mostly accurate, but the ability of the participants to articulate why a website met these criteria increased from pre to post tests. The participants did not need much instruction to help them grasp the concepts of currency and relevance probably because these are very straightforward ideas, but they did need help articulating how they reached their conclusions to answer the questions. The post-test for question 3 had the anomaly that was discussed earlier in the methods section of this paper, but all open-ended responses indicated that the participants understood relevance.

All participants answered question 4 (authority of a website) correctly in the pretest. Two of the three participants who declined in performance from the pre test to the post-test answered this question incorrectly. The qualitative data showed that the two participants assumed that because the author's name had professor before it, that it meant the source was authoritative. This was a tricky question, but most of the respondents determined that the author of the website provided a bogus identity and/or they questioned the university affiliation of the author, which was also a bogus school. Overall, all the data collected showed that the students understood the concept of authority.

All participants answered question 5 (accuracy of a website) correctly in the pretest, but many of the open-ended responses showed that the participants did not understand the concept. Although the majority of participants answered correctly in the post-test, the open-ended responses collected show that half of the participants were still not clear on the concept of accuracy. Seven of the fourteen responses for the open-ended post-test question referred to the author and their concerns regarding the author, which according to the CRAAP test falls under the authority of the website, not the accuracy. Some respondents correctly identified that the information appeared to be incorrect and others stated that there were no citations for the information on the website, which refer to the accuracy of the information on the webpage. While accuracy and authority are not mutually exclusive, it is still critical to judge the information separately because the author of the website may make false claims regarding his or her qualifications.

Only one participant incorrectly answered question 6 (purpose of a website) in the pre and post tests, but half of the open-ended responses revealed that either people did not



understand how to determine the purpose of the website or they just barely grasped the concept. Like questions 5 (accuracy of a website) the participants scored well, but did not demonstrate via the open-ended response that they grasped the concept.

The quantitative and qualitative results in the post-test for questions 2-6 may have been different if the participants had access to the CRAAP test table (Table 1) as they evaluated the website. The participants were probably so inundated with information - the criterion and the questions they needed to answer to determining if a website met the criterion - it was just too much to remember. Having the table while evaluating the website may have been easier than trying to recall what they had learned. In a real life situation, the student would have access to the CRAAP test table as they evaluated a website. As time went on, the student would depend less and less on the table because they would develop a familiarity with how to evaluate using the criterion.

Question 7, which asked the participants to determine if they were comfortable using the website in a graded project, was only included on the pre and post-tests. There was no qualitative data collected for this question, but it appeared as if everyone was comfortable with this question because all participants in both tests answered it correctly.

## **Conclusion**

Quantitative results indicated that participant scores improved from the pretest to post-test. Qualitative results collected from open-ended responses demonstrated that participants' understanding of the website evaluation criteria increased from pretest to post-test, but still needs improvement regarding a few criterion of the CRAAP test. Overall, the module appears to have helped the participants learn how to evaluate websites. Areas in which participants need improvement will be addressed in future revisions of this module, which will be made available to students and instructors at Honolulu Community College, part of the University of Hawaii System. It will also be shared with other instruction librarians within the University of Hawaii System.

Since students are increasingly turning to the Internet to find sources for school assignments, it is important to teach them website evaluation. As illustrated in Figure 1, some students are better prepared to evaluate websites than others. In the long run it is better for all students to have some form of instruction to learn how to evaluate websites, even if it means providing a review for some students. The best option would be to catch students as undergraduates with a research component to their class. Students tend to retain information better if they actually need to know it and have to use it. A further study, like the one done at UCLA, which showed that students often turn first to the Internet to find sources and don't necessarily care if they are right and wrong (Mizrachi, 2012), should be done specifically on undergraduates at the University of Hawaii to gage their knowledge and attitude toward evaluating websites.



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